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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/437,975 05/10/95 ZURAVLEFF W 018414-082

B3M1/0515

ASTA, F

EXAMINER

JAMES A LABARRE
BURNS DOANE SWECKER & MATHIS
PO BOX 1404
ALEXANDRIA VA 22313-1404

ART UNIT

PAPER NUMBER

2318

#3

DATE MAILED:

05/15/96

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/437,975

Applicant(s)

Zuravleff et al

Examiner

Frank J. Asta

Group Art Unit

2318



☒ Responsive to communication(s) filed on Aug 3, 1995

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three (3) month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-24 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-3, 9-15, and 21-24 is/are rejected.

☒ Claim(s) 4-8 and 16-20 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

This applications has been reviewed. Original claims 1-24 are pending. The objections and rejections cited are as stated below:

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: -- A CONTROLLER FOR A SYNCHRONOUS DRAM THAT MAXIMIZES THROUGHPUT BY ALLOWING MEMORY REQUESTS AND COMMANDS TO BE ISSUED OUT OF ORDER -- or something similar;

2. The drawings are objected to because of the objections noted on the PTO-948 form attached. Correction is required.

3. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

4. The disclosure is objected to because of the following informalities:

- (a) On page 9, line 31 "inidcates" should be corrected;
 - (b) On page 10, line 8 "assume" should be corrected;
 - (c) On page 15, lines 17 and 21, respectively, "324" should be corrected to --322-- and "359" should be corrected to --354-- so that the description will correlate with the figures;
 - (d) On page 19, line 15 "pluarlity" should be corrected.
- Appropriate correction is required.

5. The Abstract of the Disclosure is objected to because the abstract does not describe the limitations that are introduced in the dependent claims such as "tagging", "clock dividing", "arbitration unit", constraint unit", "qualification unit", and "command update unit". Correction is required. See M.P.E.P. § 608.01(b).

Applicant is reminded of the proper language and format of an Abstract of the Disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said", should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 11-12, 13 and 23-24 are rejected under 35 U.S.C. § 102(b) as being anticipated by Iyer.

Iyer, U.S. Patent 5179667, discloses a system for interfacing a processing device to a synchronous DRAM comprising

a means for developing memory requests from the processing device and a controller for maximizing throughput of the memory requests from the processing device to the synchronous DRAM. This can be found in figures 1 and 2 and in column 2, lines 41-48 and column 4, lines 60-68 and continued into column 5, lines 1-15. By this rationale claims 11 and 23 are rejected.

Iyer further discloses that the controller maximizes throughput based on scheduling constraints of the SDRAM and arbitrates between conflicting memory requests so that data slots used by the SDRAM are maximized. This can be found in column 8, lines 33-68, column 9, lines 39-51 and column 16, lines 59-68. By this rationale claims 12 and 24 are rejected.

Iyer discloses in column 3, lines 38-68 a sorting means for receiving memory requests and sorting the memory requests by the address to where they are sourced from and further prioritizing these requests for minimum synchronization penalties thus maximal throughput for the synchronous DRAM. By this rationale claims 1 and 13 are rejected.

7. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 2-3, 9-10, 14-15, and 21-22 are rejected under 35 U.S.C. § 103 as being unpatentable over Iyer.

Iyer discloses the invention substantially as claimed as detailed supra. However Iyer does not explicitly teach "tagging the memory requests" for indicating a sending order and the return data path for detecting the order of data returning.

Iyer's does explicitly teach that each source that supplies memory requests have a priority order that the controller uses to sort these requests so that they will be processed if necessary out of order depending on which source supplied the request and which path was currently being accessed (column 2, lines 38-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made that there would be a "tagging" means for the controller to correlate the memory request with the source and therefore arbitrate which request would be processed next. And since the data returned from the memory access also passes through the controller it would also have been obvious to one of ordinary skill in the art at the time the invention was made that return paths and arbitration for returning the data along these paths according to the priority would have to be

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carried out to continue maximizing throughput which was the purpose of Iyer's invention (see column 2, lines 41-48). By this rationale claims 2-3, 9-10, 14-15, and 21-22 are rejected.

8. Claims 4-8 and 16-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Applicants submitted prior art has been considered and made of record - see PTO 1449 form. Iyer's was actually a applicant submitted art from as noted on the PTO-1449.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank J. Asta whose telephone number is (703) 305-3817. The examiner can normally be reached on Mondays through Thursdays from 7 A.M. to 5 P.M. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tod R. Swann, can be reached on (703)

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308-7791. The fax phone number for this Group is (703) 308-5357.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-9605.

FJA/May 10 1996

A handwritten signature in dark ink, appearing to read "Frank J. Asta", with a long horizontal line extending to the left.

Frank J. Asta

PATENT EXAMINER

Group 2300